REMARKS/ARGUMENTS

The Office Action mailed July 26, 2006 has been carefully reviewed. Reconsideration of this application, as amended and in view of the following remarks, is respectfully requested. Claims 1-51 originally appeared in the application. Claims 2-4, 6-9, 13-17, 19, 21-23, 25-28, 31-34, 36, 38-49, and 51 are withdrawn from consideration in a response to a restriction requirement. The claims presented for examination are: claims 1, 5, 10, 11, 18, 20, 24, 29, 30, 35, 37, and 50.

Applicants' Claimed Invention

Applicants' claimed invention provides a stretchable electronic circuit, electronic device, and process to produce a circuit or electronic device. The stretchable electronic circuit, electronic device, and process to produce a circuit or electronic device include a solid stretchable polymer body made entirely of poly(dimethylsiloxane). At least one microchannel is formed in the solid stretchable polymer body. The microchannel has a longitudinal component that extends in the longitudinal direction and an offset component that is at an angle to the longitudinal direction. A conductive media is contained in the microchannel. The microchannel and conductive media form a circuit line having a longitudinal component that extends in the longitudinal direction and an offset component that is at an angle to the longitudinal direction. The longitudinal component and the offset component allow the apparatus to stretch in the longitudinal direction while maintaining the integrity of the circuit line. The FIG. 3 embodiment of Applicants' claimed invention is show below.

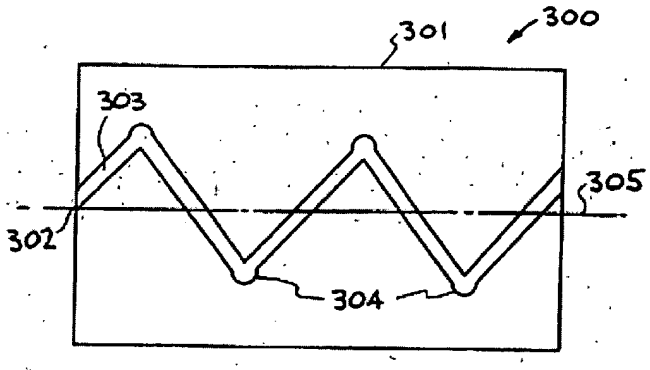

FIG. 3

Applicants' claimed invention provides a stretchable electronic circuit or electronic device and a polymer-based process to produce a circuit or electronic device that has use in implantable biomedical microdevices.

Double Patenting – Claims 1, 10, 18, 35, and 37

In numbered paragraphs 2, 3, and 4 of the Office Action mailed July 26, 2006, claims 1, 10, 18, 35, and 37 were provisionally rejected under 35 U.S.C. §101 as claiming the same invention as that of claims 1, 7, 12, 15, and 17, of copending Application No. 10/826,477.

Applicants' invention claimed in amended claims 1, 10, 18, 35, and 37 is not the same invention as that of claims 1, 7, 12, 15, and 17 of copending Application No. 10/826,477. For example Applicants' invention claimed in amended claims 1, 10, 18, 35, and 37 includes "a solid stretchable polymer body made entirely of poly(dimethylsiloxane)," "at least one microchannel in said solid stretchable polymer body," and "a conductive media contained in said at least one microchannel."

Double Patenting – Claims 20 and 29

In numbered paragraph 5 of the Office Action mailed July 26, 2006, claims 20 and 29 were provisionally rejected as being unpatentable over claims 1 and 7 of copending Application No. 10/826,477.

Applicants' believe that the invention claimed in amended claims 20 and 29 is patentable over claims 1 and 7 of copending Application No. 10/826,477. Applicants' invention claimed in amended claims 20 and 29 includes "a solid flexible polymer body made entirely of poly(dimethylsiloxane), said solid stretchable polymer body made entirely of poly(dimethylsiloxane) having a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the circuit," and "at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the apparatus, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," and "a conductive media contained in said at least one microchannel, wherein said at least one microchannel and said conductive media form at least one circuit line operatively connected to said flexible polymer substrate, said at least one circuit line having a component that is aligned with the central longitudinal axis of the circuit and wherein said longitudinal component and said offset component allowing the circuit to stretch in the longitudinal direction while maintaining the integrity of said at least one circuit line. Claims 1 and 7 of copending Application No. 10/826,477 do not show or suggest these claim elements.

35 U.S.C. §102 Rejection – Istook

In numbered paragraphs 6, 7, 8, and 9 of the Office Action mailed July 26, 2006, claims 1, 5, 18, 20, 24, 35, and 50 were rejected under 35 U.S.C. §102(b) as being anticipated by the Istook reference (U.S. Patent No. 6,341,504).

Applicant believes the invention claimed in amended claims 1, 5, 18, 20, 24, 35, and 50 is not anticipated by the Istook reference. The standard for a 35 U.S.C. §102 rejection is stated in RCA Corp. v. Applied Digital Systems, Inc, 221PQ 385, 388 (d.

Cir. 1984) "Anticipation is established only when a single prior art reference discloses, either expressly or under principles of inherency, each and every element of a claimed invention."

Applicants point out that the following elements of Applicants' amended claim 1 and other rejected apparatus claims are not found in the Istook reference:

> "a solid stretchable polymer body made entirely of poly(dimethylsiloxane), said solid stretchable polymer body made entirely of poly(dimethylsiloxane) having a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the apparatus," or
>
> "at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the apparatus, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or
>
> "a conductive media contained in said at least one microchannel, wherein said at least one microchannel and said conductive media form at least one circuit line operatively connected to said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one circuit line extending in the longitudinal direction and having a longitudinal component that extends in the longitudinal direction and having an offset component that is at an angle to the longitudinal direction, said longitudinal component and said offset component allowing the apparatus to stretch in the longitudinal direction while maintaining the integrity of said at least one circuit line."

Applicants also point out that the following steps of Applicants' amended claim 35 and other rejected method claims are not found in the Istook reference:

> "providing a solid stretchable polymer body made entirely of poly(dimethylsiloxane)," or
>
> "assuring that said solid stretchable polymer body made entirely of poly(dimethylsiloxane) has a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the electronic device;" or
>
> "providing at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane) with said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central

longitudinal axis of the device, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or

"filling said at least one microchannel with a conductive media to assure that said stretchable polymer body, has a circuit line longitudinal component that extends in the longitudinal direction," or
"said stretchable polymer body has a circuit line offset component that is at an angle to the longitudinal direction," or

"said longitudinal component and said offset component allowing the device to stretch in the longitudinal direction while maintaining the integrity of said circuit line longitudinal component and said circuit line offset component."

Since the elements and steps described above are not found in the Istook reference, the Istook reference does not support a 35 U.S.C. §102(b) rejection of Applicants' amended claims 1, 5, 18, 20, 24, 35, and 50 and the rejection should be withdrawn.

35 U.S.C. §102 Rejection – Albert et al

In numbered paragraphs 11 and 12 of the Office Action mailed July 26, 2006, Claims 1, 11, 20, 30, and 35 were rejected under 35 U.S.C. §102(e) as being anticipated by Albert et al (U.S. Published Patent No. 2003/0020844).

Albert et al Reference 2003/0020844

The Albert et al reference shows an electronic display 100. The display 100 can employ various materials. The flexible substrate 140 can comprise a polyester sheet with electrical connections 123 formed of copper by conventional patterning techniques. Alternatively, the electrical connections 123 can be printed with silver ink or carbon ink. The electrical connections can be coated by printing with a dielectric, for example a polymer. Vias through the dielectric can provide for electrical contact to a display element 110. Each electrical connection 123 is in communication with a first contact pad 121 and a second contact pad 122. Further, each first contact pad 121 is in electrical communication with one of the

display elements 110 while each of the second contact pads 122 is in electrical communication with the driver chip 131. The driver chip 131 is in electrical communication with other contact pads 151 to provide for electrical communication with other IC's (not shown) of the control circuit 130.

The Albert et al Reference Does Not Anticipate

The Albert et al reference does not anticipate Applicants' invention claimed in amended claims 1, 11, 20, 30, and 35. The standard for a 35 U.S.C. §102 rejection is stated in RCA Corp. v. Applied Digital Systems, Inc, 221PQ 385, 388 (d. Cir. 1984) "Anticipation is established only when a single prior art reference discloses, either expressly or under principles of inherency, each and every element of a claimed invention."

Applicants point out that the following elements of Applicants' amended claim 1 and other rejected apparatus claims are not found in the Albert et al reference:

> "a solid stretchable polymer body made entirely of poly(dimethylsiloxane), said solid stretchable polymer body made entirely of poly(dimethylsiloxane) having a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the apparatus," or
>
> "at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the apparatus, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or
>
> "a conductive media contained in said at least one microchannel, wherein said at least one microchannel and said conductive media form at least one circuit line operatively connected to said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one circuit line extending in the longitudinal direction and having a longitudinal component that extends in the longitudinal direction and having an offset component that is at an angle to the longitudinal direction, said longitudinal component and said offset component allowing the apparatus to stretch in the longitudinal direction while maintaining the integrity of said at least one circuit line."

Applicants also point out that the following steps of Applicants' amended claim 35 and other rejected method claims are not found in the Albert et al reference:

"providing a solid stretchable polymer body made entirely of poly(dimethylsiloxane)," or

"assuring that said solid stretchable polymer body made entirely of poly(dimethylsiloxane) has a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the electronic device;" or

"providing at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane) with said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the device, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or

"filling said at least one microchannel with a conductive media to assure that said stretchable polymer body, has a circuit line longitudinal component that extends in the longitudinal direction," or

"said stretchable polymer body has a circuit line offset component that is at an angle to the longitudinal direction," or

"said longitudinal component and said offset component allowing the device to stretch in the longitudinal direction while maintaining the integrity of said circuit line longitudinal component and said circuit line offset component."

Since the elements and steps described above are not found in the Albert et al reference, the Albert et al reference does not support a 35 U.S.C. §102(b) rejection of Applicants' amended claims 1, 11, 20, 30, and 35 and the rejection should be withdrawn.

35 U.S.C. §103 Rejection – Istook

In numbered paragraphs 12 and 13 of the Office Action mailed July 26, 2006, claims 10, 29, and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Istook (U.S. Patent No. 6,341,504).

Applicant believes the invention claimed in amended claims 10, 29, and 37 is patentable over the Istook reference. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) that are applied for establishing a background for determining obviousness under 35 U.S.C. §103(a) include "Ascertaining the differences between the prior art and the claims at issue."

The differences between the Istook reference and Applicants' invention defined by amended independent claims 1, 20, and 35 and incorporated in claims 10, 29, and 37 includes the fact that the following elements of amended independent claims 1, 20, and 35 are not found in the Istook reference:

Applicants point out that the following elements of Applicants' amended claim 1 and other rejected apparatus claims are not found in the Istook reference:

> "a solid stretchable polymer body made entirely of poly(dimethylsiloxane), said solid stretchable polymer body made entirely of poly(dimethylsiloxane) having a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the apparatus," or
>
> "at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the apparatus, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or
>
> "a conductive media contained in said at least one microchannel, wherein said at least one microchannel and said conductive media form at least one circuit line operatively connected to said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one circuit line extending in the longitudinal direction and having a longitudinal component that extends in the longitudinal direction and having an offset component that is at an angle to the longitudinal direction, said longitudinal component and said offset component allowing the apparatus to stretch in the longitudinal direction while maintaining the integrity of said at least one circuit line."

Applicants also point out that the following steps of Applicants' amended claim 35 and other rejected method claims are not found in the Istook reference:

"providing a solid stretchable polymer body made entirely of poly(dimethylsiloxane)," or

"assuring that said solid stretchable polymer body made entirely of poly(dimethylsiloxane) has a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the electronic device;" or

"providing at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane) with said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the device, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or

"filling said at least one microchannel with a conductive media to assure that said stretchable polymer body, has a circuit line longitudinal component that extends in the longitudinal direction," or

"said stretchable polymer body has a circuit line offset component that is at an angle to the longitudinal direction," or

"said longitudinal component and said offset component allowing the device to stretch in the longitudinal direction while maintaining the integrity of said circuit line longitudinal component and said circuit line offset component."

Since the Istook reference lacks the above identified elements of applicants' claims 10, 29, and 37 and there is not a showing or suggestion of Applicants' claim elements, a 35 U.S.C. §103(a) rejection of Applicant's claims is not be appropriate and the rejection should be withdrawn.

35 U.S.C. §103 Rejection – Albert et al

In numbered paragraph 14 of the Office Action mailed July 26, 2006, claims 10, 29, and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Albert et al (U.S. Published Patent No. 2003/0020844).

Applicant believes the invention claimed in amended claims 10, 29, and 37 is patentable over the Albert et al reference. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) that are applied for establishing a background for determining obviousness under 35 U.S.C. §103(a) include "Ascertaining the differences between the prior art and the claims at issue."

The differences between the Albert et al reference and Applicants' invention defined by amended independent claims 1, 20, and 35 and incorporated in claims 10, 29, and 37 includes the fact that the following elements of amended independent claims 1, 20, and 35 are not found in the Albert et al reference:

Applicants point out that the following elements of Applicants' amended claim 1 and other rejected apparatus claims are not found in the Istook reference:

> "a solid stretchable polymer body made entirely of poly(dimethylsiloxane), said solid stretchable polymer body made entirely of poly(dimethylsiloxane) having a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the apparatus," or
>
> "at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the apparatus, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or
>
> "a conductive media contained in said at least one microchannel, wherein said at least one microchannel and said conductive media form at least one circuit line operatively connected to said solid stretchable polymer body made entirely of poly(dimethylsiloxane), said at least one circuit line extending in the longitudinal direction and having a longitudinal component that extends in the longitudinal direction and having an offset component that is at an angle to the longitudinal direction, said longitudinal component and said offset component allowing the apparatus to stretch in the longitudinal direction while maintaining the integrity of said at least one circuit line."

Applicants also point out that the following steps of Applicants' amended claim 35 and other rejected method claims are not found in the Istook reference:

"providing a solid stretchable polymer body made entirely of poly(dimethylsiloxane)," or

"assuring that said solid stretchable polymer body made entirely of poly(dimethylsiloxane) has a polymer body longitudinal axis that is concurrent with the central longitudinal axis of the electronic device;" or

"providing at least one microchannel in said solid stretchable polymer body made entirely of poly(dimethylsiloxane) with said at least one microchannel having a microchannel longitudinal axis that is concurrent with the central longitudinal axis of the device, a longitudinal component that extends in the longitudinal direction, and an offset component that is at an angle to the longitudinal direction," or

"filling said at least one microchannel with a conductive media to assure that said stretchable polymer body, has a circuit line longitudinal component that extends in the longitudinal direction," or
"said stretchable polymer body has a circuit line offset component that is at an angle to the longitudinal direction," or

"said longitudinal component and said offset component allowing the device to stretch in the longitudinal direction while maintaining the integrity of said circuit line longitudinal component and said circuit line offset component."

Since the Albert et al reference lacks the above identified elements of applicants' claims 10, 29, and 37 and there is not a showing or suggestion of Applicants' claim elements, a 35 U.S.C. §103(a) rejection of Applicant's claims is not be appropriate and the rejection should be withdrawn.

SUMMARY

The undersigned respectfully submits that, in view of the foregoing amendments and the foregoing remarks, the rejections of the claims raised in the Office Action dated July 26, 2006 have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that the claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned attorney at (925) 424-6897.

Respectfully submitted,

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Livermore, California
Dated: October 23, 2006